REMARKS

By this response, claims 21, 22, 34 and 38 are amended, and claims 46-50 are newly added. Claims 21-35, 38 and 44-50 are now active for examination. No new matter is introduced. Adequate descriptive support for the amendment can be found in the specification.

The Office Action dated November 15, 2002 rejected claims 21 and 38 under 35 U.S.C. §102(b) as being anticipated by Mastromattei (U.S. Patent No. 5,485,410), and claims 21-29, 31-33, 35, 38, 44 and 45 under 35 U.S.C. §102(b) as being anticipated by Dale, Jr. (U.S. Patent No. 5,531,030). The Office Action objected to claims 30 and 34 as being dependent upon a rejected base claim, but indicated the claims would be allowable if rewritten in independent form. The rejections and objection are respectfully traversed in light of the claim amendment and remarks presented herein.

CLAIM 34 IS ALLOWABLE

Claim 34 was objected to as being dependent upon a rejected base claim, but the claim would be allowable if rewritten in independent form including every limitation of the claim or claims from which it depends. By this amendment, claim 34 is rewritten in independent form as requested by the Examiner. The claim is now allowable.

THE ANTICIPATION REJECTIONS ARE TRAVERSED

Claims 21 and 38 were rejected under 35 U.S.C. §102(b) as being anticipated by Mastromattei (U.S. Patent No. 5,485,410). The rejection is respectfully traversed because the reference does not support a *prima facie* case of anticipation.

A *prima facie* case of anticipation under 35 U.S.C. § 102 requires that a single prior art reference must disclose each and every element as set forth in the subject claim. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

"The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The cited reference does not meet these requirements.

As already noted in the previous response, Mastromattei is related to **a tape measure** having a calculator adapted thereto. There is no signal interconnection between the tape measure and the calculator. After a user conceives and reads readings from the tape measure, the user inputs the readings to the calculator for conducting calculations that the user deems fit (Fig. 1; col. 4,, lns 44-48). Although Mastromattei does not appear to be related to a machine vision measuring system, the Office Action contended that the claims read on the Mastromattei's device.

The Examiner is thanked for a telephone discussion on February 7, 2003 to discuss the details of the Office Action. The Examiner expressed concerns that, when the calculator in Mastromattei converts a measurement value from one length unit to another, such as from inch to centimeter, Mastromattei may have used a computer to *calculate a value* representing the position of the first measuring device relative to the second measuring device based on a position of the first calibration target relative to the third measuring device. By this response, claim 21 is amended to clarify claim scope.

Claim 21, as amended, recites:

> A method for calibrating a machine measuring system that has a first measuring device and a second measuring device, the method comprising the steps of:
>
> mounting a first calibration target in a predetermined relationship to the first measuring device..., wherein the first measuring device is configured to measure a relative position between the first measuring device and a first object;
>
> mounting a third measuring device in a predetermined relationship to the second measuring device..., wherein the second measuring device is configured to measure a relative

position between the second measuring device and a second object; and

using a computer, determining a relative position between the first object and the second object based on a position of the first calibration target relative to the third measuring device, the relative position between the first measuring device and the first object, and the relative position between the second measuring device and the second object.

(emphases added)

In rejecting the claim, the office action asserted that the tape in Mastromattei is comparable to the first measuring device and that the corner of the device below the tape or the rear corner of the device below the tape is comparable to the second measuring device. However, the first and second measuring devices as identified by the Examiner do not *measure relative positions between the measuring devices and objects*, as described in the amended claim.

In addition, Mastromattei fails to teach "**using a computer**, **determining** a relative position between the first object and the second object **based on** a position of the first calibration target relative to the third measuring device, the relative position between the first measuring device and the first object, and the relative position between the second measuring device and the second object (emphasis added)," as required by claim 21. The calculator in Mastromattei only receives whatever data a user feeds to it. The calculator lacks the capacity to determine relative positions between objects. Therefore, Mastromattei does not teach every limitation of the claim and hence cannot support a prima facie case of anticipation. The anticipation rejection is untenable and should be withdrawn. Favorable consideration of the claims is respectfully requested.

Mastromattei also fails to teach every feature of claim 38. Claim 38, as amended, recites "mounting near the first device a calibration device in which the position of the calibration device relative to the first device is predetermined; mounting near the second device a calibration target

in which the position of the calibration target relative to the second device is predetermined; measuring the position of the calibration device relative to the calibration target; accessing computer-stored data related to the position of the calibration device relative to the first device and the position of the calibration target relative to the second device; and using a computer, determining the position of the first device relative to the second device based on: the position of the calibration device relative to the first device; the position of the calibration target relative to the second device; and the position of the calibration device relative device to the calibration target."

In the previous Office Action, the Examiner failed to discuss why Mastromattei disclosed limitations of claim 38. Upon Applicants' request, the Examiner, for the first time, explained how Mastromattei applies to the claim. In rejecting claim 38, the Office Action contended that the tab on the end of the tape is comparable to the first device, and that the corner of the device below the tape or the rear corner of the device below the tape is comparable to the second device, and that the tape is the calibration device, and that the part of the tape measure body above the tape is comparable to the calibration target.

Contrary to the Examiner's contention, Mastromattei does not describe every limitation of claim 38. The calculator in Mastromattei only converts or conducts calculations on measurements *read and input* by a user. The relative position is determined by a user, not the calculator. Thus, Mastromattei's calculator does not make any determination of relative positions. Therefore, the calculator does not "*determin[e] the position* of the first device relative to the second device," as required by claim 38. (Emphasis added).

In addition, Mastromattei fails to teach "accessing **computer-stored data** related to the position of the calibration device relative to the first device **and** the position of the calibration target relative to the second device," as required by claim 38. (Emphasis added).

Therefore, Mastromattei fails to teach every limitation of claim 38. Accordingly, the reference cannot support a prima facie case of anticipation. The anticipation rejection is untenable and should be withdrawn. Favorable consideration of the claim is respectfully requested.

Claims 21-29, 31-33, 35, 38, 44 and 45 were rejected under 35 U.S.C. §102(b) as being anticipated by Dale. Dale is directed to an apparatus using additional sensors for monitoring calibration status of alignment sensors attached to vehicle wheels. According to Dale, primary sensors, detector 32 and emitter 30, are attached to two wheels LF, LR respectively for detecting positional data of the wheels. A wide angle point source of light 42 is located in vertical alignment with detector 32, and a narrow mirror 40 is mounted in vertical alignment with emitter 30 (Fig. 1; col. 3, lns. 45-55). Light source 42 emits a beam towards mirror 40, which is then reflected back to detector 30 only when the angle between the plane of rotation of wheel LR and the reference line extending between the sensors is zero degree. Thus, if the detector 32 and emitter 30 is in zero-set calibration, the output from the primary sensors should be zero degree when detector 32 detects the reflected beam. Otherwise, if the output from the primary sensor is different from zero when detector 32 detects the reflected beam, the sensors are out of calibration (col. 3, lns. 55-67).

Dale, however, does not disclose every limitation of the claims. According to Dale, the light source 42, mirror 40, and the primary detector 32 together provide an indication of whether the detector 32 and emitter 30 are in zero-set calibration: when the detector 32 detects the

reflected light sent by light source 42, the reading on the detector has to be at zero degree. Thus, Dale merely uses the light source 42 and mirror 40 as a reference signal to compare with readings of detector 32.

Dale does not determine the relative position between the light source 42 and mirror 40, let alone determining relative positions of other devices **based on** such relative position. Thus, Dale fails to describe either "determining a relative position between the first object and the second object **based on** a position of the first calibration target relative to the third measuring device, the relative position between the first measuring device and the first object, and the relative position between the second measuring device and the second object," as required by claim 21, or "determining the position of the first device relative to the second device **based on**: the position of the calibration device relative to the first device; the position of the calibration target relative to the second device; and the position of the calibration relative device to the calibration target," as required by claim 38.

In responding to the arguments presented in the previous response, the Examiner asserts that Dale explicitly describes "mirrors (40, 42) that have known angular relationships ('030, col. 4, line 7 to 24) to a device ('040, 14), and a sensor that uses a programmable control means to arrive at angular position, a type of relative position." Even if the assertion is true, Dale does not calculate relative positions based on relative positions of the devices/targets. Thus, Dale fails to teach "determining a relative position between the first object and the second object **based on** a position of the first calibration target relative to the third measuring device, the relative position between the first measuring device and the first object, and the relative position between the second measuring device and the second object," as required by claim 21, or "determining the position of the first device relative to the second device **based on**: the position of the calibration

device relative to the first device; the position of the calibration target relative to the second device; and the position of the calibration device relative to the calibration target," as required by claim 38.

Since Dale fails to teach every limitation of the claims 21 and 38, Dale cannot support a prima facie case of anticipation. Therefore, the claims are patentable over Dale. Directly or indirectly, claims 22-29, 31-33, 35, 44 and 45 depend on claims 21 and 38, respectively, and include every limitation thereof. Therefore, claims 22-29, 31-33, 35, 44 and 45 are also patentable over Dale based on the same reasons as well as on their own merits. Favorable consideration of the claims is respectfully requested.

THE OBJECTION OF CLAIM 30 IS ADDRESSED

Claim 30 was objected to as being dependent upon a rejected base claim. Claim 30 depends on claim 21 indirectly and includes every limitation therein. As discussed above, claim 21 is patentable over the cited reference. Therefore, claim 30 is also patentable based on the same reasons as discussed above as well as on its own merits. Favorable consideration of the claim is respectfully requested.

NEW CLAIMS 46-50 INCLUDE PATENTABLE FEATURES

By this response, claims 46-49 are newly added. Claim 46 is directed to a *machine-implemented* method for determining the relative position between a first and second measuring devices. The method processes signals representing a relative position between a first and second calibration devices, wherein the first calibration device is in a first known positional relationship to the first measuring device, and the second calibration device is in a second known positional relationship to the second measuring device. The method accesses data related to the first and second known positional relationships. The method then determines the relative position between

a first measuring device and a second measuring device based on the relative position between the first calibration device and the second calibration device, the first known positional relationship and the second known positional relationship. Claims 47-49 depend on claim 46, and further describe details of the calibration devices and steps for obtaining calibration values.

Claim 50 is directed to a *machine-implemented* method for determining the relative position between a first and second measuring devices. The method periodically receives signals representing a relative position between a first and second calibration devices, wherein the first calibration device is in a first known positional relationship to the first measuring device, and the second calibration device is in a second known positional relationship to the second measuring device. The method accesses data related to the first and second known positional relationships. The method then determines the relative position between a first measuring device and a second measuring device based on the relative position between the first calibration device and the second calibration device, the first known positional relationship and the second known positional relationship.

None of the references discloses features described in the claims. The claims are in proper form of allowance. Favorable consideration of the claims is respectfully requested.

CONCLUSION

Therefore, the present application claims subject matter patentable over the references of record and is in condition for allowance. Favorable consideration is respectfully requested. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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MARK-UP VERSION SHOWING CHANGES MADE

21. (Twice Amended) A method for calibrating a machine measuring system that has a first measuring device and a second measuring device, the method comprising the steps of:

mounting a first calibration target in a predetermined relationship to the first measuring device of the machine measuring system, wherein the first measuring device is configured to measure a relative position between the first measuring device and a first object;

mounting a third measuring device in a predetermined relationship to the second measuring device of the machine measuring system, wherein the second measuring device is configured to measure a relative position between the second measuring device and a second object; and

using a computer, [calculating] determining a relative [measuring-device] position [value of] between the first object and the second object [the machine measuring system representing the position of the first measuring device relative to the second measuring device] based on a position of the first calibration target relative to the third measuring device, the relative position between the first measuring device and the first object, and the relative position between the second measuring device and the second object.

22. (Amended) A method as recited in Claim 21, including selecting each measuring device from a group consisting of

an image-capturing device configured to capture images of an object [for use in calculating the relative measuring-device position value of the machine measuring system];

a gravity gauge configured to detect movement of one or more other measuring devices with respect to another measuring device or with respect to a fix point;

a string gauge configured to detect movement of one or more other measuring devices with respect to another measuring device or with respect to a fix point;

a light source located near one measuring device to direct a light beam at a detector [that is located near another measuring device].

34. (Once Amended) A method for calibrating a machine measuring system that has a first measuring device and a second measuring device, the method comprising the steps of:

mounting a first calibration target in a predetermined relationship to the first measuring device of the machine measuring system;

mounting a third measuring device in a predetermined relationship to the second measuring device of the machine measuring system; and

using a computer, calculating a relative measuring-device position value of the machine measuring system representing the position of the first measuring device relative to the second measuring device based on a position of the first calibration target relative to the third measuring device, [A method as recited in Claim 21,] wherein each of the first measuring device, the second measuring device, and the third measuring device is an image-capturing device that performs measurements of objects by capturing images.

38. (Twice Amended) A method for measuring the relative positions of a first device relative to a second device [plurality of devices], the method comprising the steps of:

[for a position of a first device of the plurality of devices relative to a second device of the plurality of devices,]

mounting near the first device a calibration device in which the position of the calibration device relative to the first device is predetermined;

mounting near the second device a calibration target in which the position of the calibration target relative to the second device is predetermined;

measuring the position of the calibration device relative to the calibration target;

accessing computer-stored data related to the position of the calibration device relative to the first device and the position of the calibration target relative to the second device; and

using a computer, determining the position of the first device relative to the second device based on:

the position of the calibration device relative to the first device;

the position of the calibration target relative to the second device; and

the position of the calibration device relative [device] to the calibration target.